

## **REMARKS**

After the foregoing amendment, claims 9-28, as amended, are pending in the application. Claims 9, 11, 13, 19 and 23 have been amended to more particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Claims 1-8 have been canceled. Applicant submits that no new matter has been added to the application by the Amendment.

### **The Present Invention**

The present invention is an implementation of a switching fabric constructed from a recursive two-stage interconnection. As well known in the art, a switching fabric is a network of switching elements. At page 67 of the application, Applicant defines a recursive interconnection network as a network constructed from switching elements which correspond to leaves of a binary tree (see pages 65-67). Also, as well known in the art, a stage of a multistage interconnection network is the set of switching elements which are separated from each other by an interstage exchange.

Applicant further defines at pages 214 to 224 five levels of implementation of a switching fabric.

- a. Level I is implemented with integrated circuits (IC).
- b. Level II is implemented using printed circuit boards (PCB) populated with integrated circuits.
- c. Level III is the physical realization of an orthogonal package which includes two orthogonal stacks, one stack consisting of input switching elements and one stack consisting of output switching elements, whereby each switching element for the orthogonal level is a PCB or an IC.
- d. Level IV is the physical realization of an interface-board package using a PCB. Each switching element can be an IC, a PCB, an orthogonal package or an interface-board package when used recursively.
- e. Level V is the physical realization of a package using a physically flexible communication medium, exemplified by optical fibers, for interconnecting the input switching

elements and the output switching elements. Each switching element at level V can be an IC, a PCB, an orthogonal package or an interface-board package.

Figure 75C shows an example of a switch which incorporates all five implementation levels.

### **Rejection - 35 U.S.C. § 102**

The Examiner rejected claims 9-28 under 35 U.S.C. § 102 as being unpatentable over U.S. Patent No. 5,963,554 (Song). Applicant respectfully traverses the rejection.

Amended claim 9 recites a switch comprising a first switching fabric based on a first implementation level and a second switching fabric based on a second implementation level different from the first implementation level compatible with the first switching level.

Song discloses two switching fabrics of an identical implementation level. Amended claim 9 recites that the implementation levels must be different. Applicant submits that Song does not anticipate claim 9. Accordingly Applicant respectfully requests reconsideration and withdrawal of the §102 rejection of claim 1.

Further, it is respectfully submitted that since claim 9 has been shown to be allowable, claim 10 dependent on claim 9 is allowable, at least by its dependency. Accordingly, for all the above reasons, Applicant respectfully requests reconsideration and withdrawal of the § 102 rejection of claim 10.

Claim 11 has been amended to recite that the claimed switch is a switch constructed from other than a Banyan type of network. Song discloses a switch constructed of a Banyan type of network (see col. 2, line 4, col. 2, lines 26-28, col. 4, lines 13-16) and does not teach or suggest that the type of disclosed switch could be other than a Banyan type of switch. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the § 102 rejection of claim 11.

Further, it is respectfully submitted that since claim 11 has been shown to be allowable, claim 12 dependent on claim 11 is allowable, at least by its dependency. Accordingly, for all the above reasons, Applicant respectfully requests reconsideration and withdrawal of the § 102 rejection of claim 12.

Amended claim 13 recites a switch comprising n first switching elements each of which has m output ports and m second switching elements each of which has n input ports,

where the  $m$  output ports and the  $n$  input ports of each switching element are connected via an interface circuit and where  $m$  is not equal to  $n$ . In contrast, Song discloses a switch in which  $m$  is equal to  $n$ . Accordingly, Applicant respectfully requests reconsideration and withdrawal of the § 102 rejection of claim 13.

Further, it is respectfully submitted that since amended claim 13 has been shown to be allowable, claims 14-18 dependent on claim 13 are allowable, at least by their dependency. Accordingly, for all the above reasons, Applicant respectfully requests reconsideration and withdrawal of the § 102 rejection of claims 14-18.

Claim 19 recites a switch comprising  $n$  first switching elements stacked in parallel first planes,  $m$  second switching elements stacked in parallel second planes and an interface circuit interposed between the first switching elements and a second switching elements, where the interface circuit has  $m$  input ports in each of  $n$  input planes parallel with the first planes and  $n$  output ports in each of  $m$  output planes parallel with the second planes.

Song discloses in Fig. 13 a backboard interposed between the output ports of a first stack and the input ports of a second stack. However, the backboard disclosed in Fig. 13 is orthogonal to both the first planes and the second planes and does not have  $m$  input ports in each of  $n$  input planes parallel with the planes of the first stack and  $n$  output ports in each of  $m$  output planes parallel with the planes of the second stack as recited in claim 19. Applicant submits that Song does not anticipate claim 19. Accordingly Applicant respectfully requests reconsideration and withdrawal of the §102 rejection of claim 19.

Further, it is respectfully submitted that since claim 19 has been shown to be allowable, claims 20-22 dependent on claim 19 are allowable, at least by their dependency. Accordingly, for all the above reasons, Applicant respectfully requests reconsideration and withdrawal of the § 102 rejection of claims 20-22.

Amended claim 23 recites a switch comprising  $n$  first switching elements each of which has  $m$  output ports and  $m$  switching elements each of which has  $n$  input ports, where  $m$  is not equal to  $n$ . In contrast, Song discloses a switch in which  $m$  is equal to  $n$ . Accordingly, Applicant respectfully requests reconsideration and withdrawal of the § 102 rejection of claim 23.

Further, it is respectfully submitted that since amended claim 23 has been shown to be allowable, claims 24-28 dependent on claim 23 are allowable, at least by their dependency.

Accordingly, for all the above reasons, Applicant respectfully requests reconsideration and withdrawal of the § 102 rejection of claims 24-28.

**Rejection - 35 U.S.C. § 103**

The Examiner rejected claims 10, 12, 18 and 28 under 35 U.S.C. § 103 as being unpatentable over Song. Applicant respectfully traverses the rejection.

Claims 10, 12, 18 and 28 are dependent respectively on claims 9, 11, 13 and 23. In respect to claim 10, dependent on claim 9, Song does not teach or suggest that the first and second switching fabrics are different implementation levels. In respect to claim 12, dependent on claim 11, Song does not teach or suggest making the disclosed switch other than a Banyan type of switch. In respect to claims 18 and 28, dependent on claims 13 and 23 respectively, Song does not teach or suggest making  $m$  not equal to  $n$ . Since there is no teaching or suggestion of the missing elements in claims 9, 11, 13 and 23, Applicant respectfully requests reconsideration and withdrawal of the § 103 rejection of claims 10, 12, 18 and 28.

**Conclusion**

Insofar as the Examiner's objections and rejections have been fully addressed, the instant application, including claims 9-28, is in condition for allowance and Notice of Allowability of claims 9-28 is therefore earnestly solicited.

Respectfully submitted,

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